

Title *Prepn. of polymeric iron sulphate - by oxidising acidic aq. soln. of ferrous sulphate at ambient pressure in absence of oxidn..*

Patent Data

Patent Family

WO9523765 A1 19950908 DW1995-41 C01G-049/14 Eng 22p * AP: 1995WO-GB00483 19950306 DSNW: AM AU BB BG BR BY CA CN CZ GB GE HU JP KG KP KR KZ LK LT LV MD MG MN NO NZ PL RO RU SI SK TJ TT UA US UZ VN DSRW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ UG

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EP-749402 A1 19961227 DW1997-05 C01G-049/14 Eng FD: Based on WO9523765 AP: 1995EP-0910624 19950306; 1995WO-GB00483 19950306 DSR: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

US5785862 A 19980728 DW1998-37 C01G-049/14 FD: Based on WO9523765 AP: 1995WO-GB00483 19950306; 1996US-0700534 19960918

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Abstract

Basic Abstract

WO9523765 A Prepn. of a polymeric form of Fe₂(SO₄)₃ comprises oxidising an acidic aq. soln. of ferrous sulphate to form Fe₂(SO₄)₃ in the soln. at ambient pressure and in the absence of oxidn. catalyst. The Fe₂(SO₄)₃ is at least partially hydrolysed by the addn. to the soln. of at least one base and the Fe₂(SO₄)₃ is kept in contact with the base at a temp. for sufficient time for polymerisation of at least partially hydrolysed Fe₂(SO₄)₃.

Also claimed is a method of treating water using the sulphate.

The pH of the aq. soln. prior to oxidn. is < 2 (esp. 0.8-1.5). The oxidn. is a one step oxidn. stage, and the oxidn. temp. is < 110deg.C (pref. 15-50)deg.C. The oxidn. time is up to 3 (pref. 1) hr. The oxidn. step concn. of Fe²⁺ ions in soln. is < 2.5 (pref. 0.25)% Fe²⁺/Fe³⁺.

During the hydrolysis step, Fe(III) hydrolysis species of formula (A) and polynuclear complexes of Fe(III) of formula (B) form as the polymeric form of Fe₂(SO₄)₃. The hydrolysis stage is carried out immediately after the oxidn. stage without removing or otherwise purifying the Fe₂(SO₄)₃ formed.

The oxidising agent comprises ozone, HNO₃, peroxide, perchlorate and/or persulphate (esp. HNO₃ and/or H₂O₂). The aq. soln. comprises FeSO₄ and H₂SO₄. The base comprises an hydroxide or a bicarbonate of an alkali metal.

USE - The polymeric Fe₂(SO₄)₃ is useful as a coagulant or flocculant and for purifying and/or decolourising water and reducing pollutants in industrial and/or municipal wastewaters.

ADVANTAGE - The polymeric Fe₂(SO₄)₃ (PFS) is obtd. by a more economical process and confers better performance. (Dwg.0/0)

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